

The present invention detects which transfer device is being used and thereafter automatically selects between the automatic mode or the manual mode depending on whether the AGV or the MGV is detected. If transferred in ABU mode, the process apparatus automatically gets the cassette and processes the substrate. If transferred in MGU mode, the system awaits for the operator's instructions and processes the substrates according to the operator's instruction. The present invention improves productivity and efficiency by automatically selecting the appropriate mode according to the transfer device being used.

***Rejection Under 35 U.S.C. §112.***

Claims 7-9 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. In particular, the Examiner has found the term "jobs" indefinite and has suggested that the term "steps" or "functions" be used instead. In response, claim 7 has been amended to include the Examiner's suggested term "steps". Since this change is believed to be no more than a synonymous word choice, this amendment should not be taken to further limit the claims.

In addition, while not mentioned in the Office Action, claim 9 has been amended to replace the semicolon appearing at the end of the claim with a period for proper syntax. No new matter has been added.

As amended, it is respectfully submitted that claims 7-9 are clear and definite and it is respectfully requested that the indefiniteness rejection to these claims be withdrawn.

***Rejection Under 35 U.S.C. §103.***

With regard to prior art rejections, claims 7-8 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 5,570,990 to Bonora et al. ("Bonora") Claim 9 stands rejected under § 103(a) as being unpatentable over Bonora, as above, further in view of U.S.

Patent 6,238,160 B1 to Hwang et al ("Hwang"). These rejections are respectfully traversed based on the following discussion.

Claim 7 recites a method for moving substrates in and out of a manufacturing process using a system comprising an automatic transfer device for automatically transferring a cassette that stores substrates, a manual transfer device for transferring the cassette according to an instruction of an operator, ....., comprising the steps of:

.....; and

(g) setting the process apparatus in an automatic transfer mode when the communication start signal is detected, and setting the process apparatus in a manual transfer mode when the communication start signal is not detected.

Bonora neither discloses nor suggests these features. Furthermore, Bonora in combination with other references of the record does not render these features of Claim 7 obvious. Therefore, it is respectfully submitted that Claim 7 is patentable over Bonora and other references of record.

The primary reference to Bonora is, as the title implies, directed to a human guided mobile loader and stocker. Bonora does not teach or suggest automatically selecting between an automatic mode or a manual mode depending on the transfer device being used to move the cassette.

The background section of Bonora sets forth a problem in the prior art in that human workers in a clean room are required to carry and lift heavy pods containing cassettes of wafers one at a time across the room and lift them above shoulder height to a an interface port of a processing tool. This leads to muscle strain and other health problems such as fatigue an carpal tunnel syndrome.

Bonora therefore proposes to solve these problems by providing a push cart 110 with an automated arm. This push cart is advantageous since it allows the human worker to transport many pods at one time and further, the mechanical arm lifts the pods to the desired height thereby alleviating the human worker from this strenuous task. In addition, smart cards can be provided on the pods for identifying the pods so that the worker does not accidentally load the wrong pod on to the processing tool.

Other than being generally directed to wafer cassette transport, Bonora is unrelated to Applicant's claimed invention. In particular, Bonora does not appear to make a distinction between automated transfer vehicles (AGV) and manual transfer vehicles (MGV). Indeed the only transfer device taught by Bonora is a manual push cart 110. As stated in the abstract, "a cart is pushed to a semiconductor processing tool where the arm is used to transfer the containers to and from the port of the processing tool" (emphasis added). Clearly, if an analogy can be made, this passage suggests that Bonora only provides for a "manual transfer vehicle".

It logically follows that if Bonora does not teach both automated transfer vehicles (AGV) and manual transfer vehicles (MGV), then they certainly cannot distinguish one from the other for the purpose of selecting an automatic or manual mode for the processing tool as claimed. In the Office Action on page 3, the Examiner alleges that "*figs. 4 and 10 col. 7, lines 11-14 and col. 8, lines 35-56 describe manual and automatic movement of the same parts and it would be inherent to provide a signal to switch from manual to automatic mode or vice versa*" (emphasis added).

However, the Examiner's allegation would not render obvious Applicant's claimed invention. First, the mere disclosure of "same parts" capable of both automated and manual movement in no way teaches or suggests "automated transfer devices" and "manual transfer

devices” particularly, since these “same parts” to which the Examiner refers are not transfer devices. As previously established, Bonora uses only a push cart as its “transfer device”. Second, the Examiner’s statement that it would be “*inherent to provide a signal to switch from manual to automatic mode or vice versa*” is logically incorrect. This claimed feature cannot be inherent in Bonora since, as a threshold matter, in order for this to be inherent, Bonora would first have to recognize that these two modes of transfer exist. Bonora does not. Rather, the only “mode” which may be inherently recognized by Bonora is a manual transfer mode since Bonora only teaches a manual push cart.

It is respectfully submitted that the transfer device “push cart” taught by Bonora does not have a mode of operation for the processing tool selected based on the push cart.

It is thus respectfully submitted that Claim 7 is patentable over the Bonora and other reference. Likewise, Claim 8 that is dependent from Claim 7 is also patentable over Bonora and other reference.

With regard to the rejection to claim 9, the Examiner has further relied on Hwang for teaching the “chucking” step which the Examiner has noted is not taught or suggested by Bonora. However, it is respectfully submitted that Hwang does not cure the omissions of Bonora with respect to independent claim 7 as set forth above, nor is it relied upon by the Examiner for that purpose. That is, even when combined these two reference do not teach or suggest the features of the claimed invention highlighted above. Thus, it is respectfully requested that the rejection to claim 9 be withdrawn.


In view of the foregoing, it is respectfully requested that the application be reconsidered, that claims 7-9 be allowed and that the application be passed to issue.

**CONCLUSION**

All of the stated grounds of objections and rejections have been properly traversed, accommodated, or rendered moot. Applicants therefor respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that be withdrawn. Applicants believe that a full and complete response has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment is respectfully requested.

Respectfully submitted,

  
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**Marked up copy of claims showing amendments:**

7 (Amended). A method for moving substrates in and out of a manufacturing process using a system comprising an automatic transfer device for automatically transferring a cassette that stores substrates, a manual transfer device for transferring the cassette according to an instruction of an operator, and a process apparatus for performing predetermined [jobs] steps on the substrate stored in the cassette, the process apparatus including a loader having a port on which cassettes transferred by the automatic transfer device and the manual transfer device are placed, and a job table on which the predetermined [jobs] steps on the substrate stored in the cassette on the port are performed, comprising the steps of:

(a) transferring the cassette to the process apparatus through the automatic transfer device or the manual transfer device when the port is available;

(b) transmitting a communication start signal to the loader by the automatic transfer device when the cassette is transferred to the process apparatus through the automatic transfer device;

(c) loading the cassette to the port from the automatic transfer device;

(d) loading the cassette to the port according to the instruction of the operator when the cassette is transferred to the process apparatus through the manual transfer device in step (a);

(e) determining whether the cassette is detected on the port;

(f) determining whether the communication start [signals] signal is detected when the cassette is detected on the port; and

(g) setting the process apparatus in an automatic transfer mode when the communication start signal is detected, and setting the process apparatus in a manual transfer mode when the communication start signal is not detected.

8 (Amended). The method of claim 7, wherein step (c) comprises the steps of:

determining whether the communication start signal is received;  
requesting a cassette loading to the automatic transfer device when the communication  
start [signals] signal is received; and  
loading the cassette to the port according to the request.

9 (Amended). The method of claim 8, wherein the method further comprises the steps of:

(h) automatically chucking the cassette when the process apparatus is set in the automatic  
transfer mode and chucking the cassette according to the instructions of the operator when the  
process apparatus is set in the manual transfer mode;

(i) reading the cassette ID of the cassette using the cassette ID reader on the loader, and  
(j) checking a position and a number of the glass substrates in the cassette on the port in  
step (g)[;].

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